

NOTES ON THE NATIVE FLORA OF NEW SOUTH WALES.

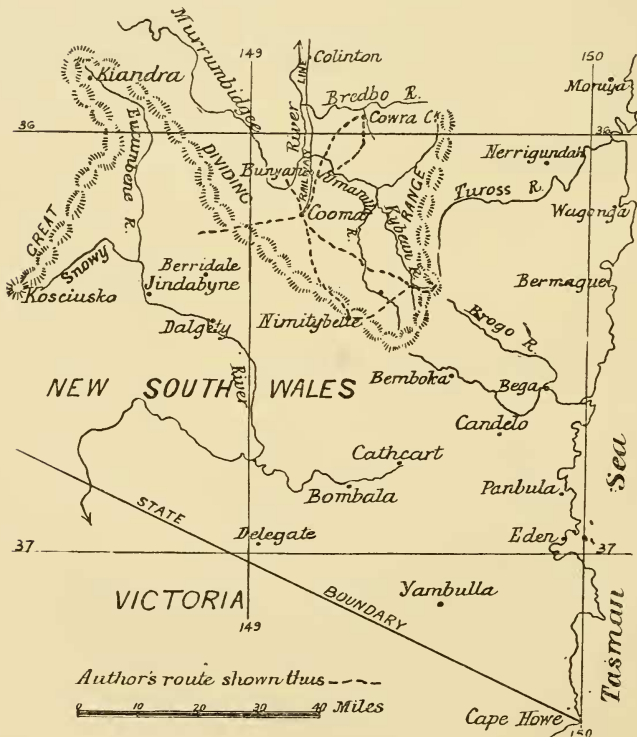
BY R. H. CABBAGE, F.L.S.

PART VII. EASTERN MONARO.

(Plate xxx.)

(Continued from *These Proceedings*, 1908, p.65.)

The area dealt with in this paper is that portion of the Monaro



Tableland lying chiefly to the east of Cooma and Nimitybelle, and falls within the Mountain-Area as a plant-zone in New

South Wales*. Its situation is just on the western side of the Great Dividing Range, which gives it, for the most part, a western rather than an eastern aspect, but being so near the divide, the locality is one in which the eastern and western floras mingle to some extent. The elevation above sea-level of the country around Cooma approximates 2,700 feet, while that in the vicinity of Nimitybelle and to the eastward, approaches 4,000 feet. The average annual rainfall at Cooma is scarcely 20 inches, but at Nimitybelle it amounts to nearly 26 inches.

It is remarkable that such an extensive tract of country as that known as the Monaro Plains, should naturally be almost destitute of trees and shrubs. From about 10 miles north of Cooma, southward almost to Nimitybelle, and then extending westerly to the Snowy River at Dalgety and towards Jindabyne, the country is made up of clear undulating plains, with only a few isolated tree-clad localities. Much of this area is covered with basalt of probably Tertiary age, furnishing a rich soil; but, although countless ages must have passed since the present conditions originated, some influence has continued to operate against the natural afforestation of this large extent of country. It seems probable that the absence of sheltering hills and gorges, and the insufficiency of the rainfall over an area swept by cold winds, have been factors in preventing the larger forms of plant-life from spreading more rapidly over these plains, for it must be remembered that in latitude $36\frac{1}{2}^{\circ}$, and at an altitude of about 3,000 feet above sea-level, with a snow-clad mountain like Kosciusko within 50 miles, the conditions for several months in the year must be exceedingly bleak. The presence of deep gorges leading up into the plateau would have had the effect of affording shelter for the growth of trees which might gradually acclimatise themselves to the higher levels, and so spread over the tableland. The formation of gorges would be assisted by an increased rainfall, especially if distributed as occasional torrential storms. Probably the moderately low rainfall on Monaro, in

* Cambage, R. H., "Climatic and Geological Influence on the Flora of N. S. Wales." Report Aust. Assoc. Adv. Science for 1907, p. 473.

view of the geological formation, is one of the most important factors in limiting the growth of trees, for where basaltic areas in New South Wales produce a wealth of vegetation, the rainfall is high. Take Mount Wilson as an instance, with its noble forest and dense undergrowth of luxuriant graceful treeferns, and it is found to have an average annual rainfall of over 50 inches, or quite $2\frac{1}{2}$ times that of Cooma. The difference is slightly greater at Kiama with its basaltic soil, and mean annual rainfall of over 54 inches; and the same applies to places on the North Coast. In spite of an annual rainfall of over 60 inches, the basaltic hills around Kiandra are very sparsely timbered, the extreme cold of a westerly aspect at an elevation approaching 5,000 feet, being too severe to admit of any robust growths. The aspect of Monaro Plains is rather more westerly than easterly, which is an important condition, for the warmer eastern aspect of both Mount Wilson and Kiama, together, of course, with the increased rainfall, has had a most important influence in producing vastly greater forest-growth.

The western atmosphere is dryer than the coastal; and, from local enquiries made, it would appear that the winds of Monaro come chiefly from the westward throughout the warmer months, thus replacing the bleakness of winter by the dry conditions of summer.

Further, the rocks of this area are for the most part igneous, of a basic character; even the granites have less acidity than what are known as acid granites; and it has been noticed in various parts of the State, that the acid (or siliceous) rocks are much more prolific in species than the basic, under similar conditions of moderate rainfall. On various parts of Monaro, where a few forest trees exist, the occurrence may fairly be attributed to the presence of rocks somewhat siliceous. Bushy Hill, which is composed of a crushed quartz-porphry, is an instance, though this spot only supports a few Snow-gums (*Eucalyptus coriacea*); but the appearance of even these, in contrast with the nakedness of other elevations, has suggested the name of Bushy Hill for the auriferous prominence just to the east of Cooma.

It is worthy of note that in the surrounding districts, where the formation is sedimentary, granitic, or gneissoid, fair forest trees are found, though, owing to the exposed situation and only medium rainfall, the timbers are not of the finest. Even under present circumstances, had the site of Monaro Plains been composed of siliceous rocks instead of basic, it is not improbable that it would have been fairly well covered with forest trees.

Some of the reasons which account for this tableland being so thinly timbered may be briefly stated as follows:—the rainfall being only moderate, the rock-formation being basic rather than siliceous, absence of shelter, the great degree of cold, and the dryness of the prevailing summer winds which come from the west and north-west.

A study of the following rock-analyses is very instructive. Contrast the low percentage of silica in the basalt, with the high percentage in the gneiss. A granite containing less than 65 to 70% of silica is not remarkably acid, but when that amount is exceeded, the rock becomes decidedly siliceous. It is interesting to observe the gradation in the amount of silica from the basalt to the granites, quartz-porphry and gneiss; and then to compare this with the increased forest-growths on the latter rocks over the first-named. If this result is actually due to the greater quantity of silica, it surely must be in some degree owing to the physical properties of the siliceous soil, rather than to the chemical constituents, for pure quartz cannot be regarded as a nourishing plant-food. Possibly the capillarity of the particles in the siliceous soil is greater than that of the basaltic, and the former is, therefore, better enabled to retain moisture and thereby sustain larger growths. The basaltic soil, in view of the limited rainfall, is suited only for the periodical production of smaller plants in response to damp seasons.

It may be noticed that, as the amount of silica increases in the rocks, various other constituents which go to furnish a good soil, gradually decrease.* The fact remains, however, that the basalt

*At the same time, the quantity of potash increases, and may have some considerable influence in producing the forest-growths.

areas around Cooma are undulating plains, valuable for grazing purposes in good seasons; while every siliceous prominence is denoted by forest-trees, though growing in an inferior soil.

I am indebted to Mr. E. F. Pittman, Under Secretary for Mines, for permission to publish the following rock-analyses, A and D, which will appear in the Mines Department Annual Report for 1909.

A. *Olivine-Basalt.* B. *Biotite-Granite.*

	%		%
Silica.....	45.06	..	66.58
Alumina.....	14.60	...	14.36
Ferric oxide....	2.60	...	1.53
Ferrous oxide.....	9.00	...	3.19
Magnesia.....	9.64	..	1.70
Lime.....	9.86	...	4.18
Soda.....	2.90	...	3.09
Potash.....	0.85	...	3.37
Water(110°C) ..	0.55	...	0.17
Water(110°C +) ..	2.73	...	0.79
Carbon dioxide.....	0.05	...	0.04
Titanium dioxide. .	1.55	...	0.65
Zirconium oxide.....	abs.	...	abs.
Phosphoric anhydride.....	0.61	...	0.10
Sulphur trioxide.....	abs.	...	abs.
Chlorine.....	abs.	...	abs.
Sulphur(FeS ₂).. .	abs.	...	abs.
Chromium sesquioxide..	0.02	...	abs.
Nickel and cobalt protoxides.	abs.	...	abs.
Manganous oxide. .	0.19	...	0.07
Baryta.....	tr.*	...	0.04
Strontia.....	tr.†	...	tr.†
Lithia.....	abs.	...	tr.†
Vanadium sesquioxide.....	0.02	...	tr.*
	100.23		99.86

A. Olivine Basalt obtained 2½ miles from Cooma on Jindabyne Road. Specific gravity, 2.911. (Analysis by Mr. H. P. White).

B. Biotite-Granite from Kybean Road, north of Bega Road. Specific gravity, 2.718. The absence of boric acid proved. (Analysis by Mr. H. P. White).

* Less than 0.01 %.

† Spectroscopic reaction only.

	C. Quartz-Porphry.		D. Gneiss.
	%		%
Silica.....	67·33	..	75·27
Alumina .. .	14·03	...	11·77
Ferric oxide.....	1·86	...	1·95
Ferrous oxide.....	2·88	...	2·91
Magnesia.....	2·47	...	0·70
Lime.....	2·72	...	0·80
Soda.....	4·36	..	1·56
Potash.....	1·71	...	3·08
Water (110°C)..	0·10	(100°C)	0·15
Water (110°C+)	1·76	(100°C+)	0·70
Carbon dioxide.....	0·03	...	0·03
Titanium dioxide.....	0·65	...	0·60
Zirconium oxide.....	abs.	...	tr.*
Phosphoric anhydride.....	0·22	...	0·19
Sulphur trioxide.....	abs.	...	abs.
Chlorine... ..	abs.	...	tr.*
Fluorine.....	—	..	abs.
Sulphur (FeS ₂).....	abs.	...	abs.
Chromium sesquioxide.....	abs.	...	tr.*
Nickel and cobalt protoxides.	tr.*	...	0·02
Manganous oxide.....	0·03	...	0·05
Baryta	0·04	...	0·05
Strontia.....	tr.†	..	present†
Lithia.....	abs.	...	present†
Vanadium sesquioxide.....	abs.	...	abs.
	100·19‡		99·83

C. Quartz-Porphry from 2 miles N. of Cooma. Specific gravity, 2·731. (Analysis by Mr. H. P. White).

D. Gneiss from Cooma. Specific gravity, 2·7406. (Analysis by Mr. H. B. Gurney).

Kosciusko Plants.

For a list of plants occurring between the Snowy River, near Jindabyne, and the summit of Mount Kosciusko, see "A Contribution towards a Flora of Mount Kosciusko," in 1898, and a "Second Contribution," &c., in 1899, in the *Agricultural Gazette* of New South Wales, by J. H. Maiden.

* Less than 0·01%.

† Spectroscopic reaction only.

‡ For Analyses B and C, see Annual Report, Department of Mines, 1908, p. 134.

Plants absent from Monaro.

Owing chiefly to climatic reasons, several of the well known groups of New South Wales trees are absent from the area described in this paper. No species of either Ironbark or Box, not even a Yellow Box (*Eucalyptus melliodora*) was noticed, though it ascends as far as Collinton. *Sterculia diversifolia* G. Don, the well known Currajong, was not seen, and usually prefers warmer localities. No species of Angophora, the common Apple Tree around Sydney, appears to exist on the part of Monaro under discussion. The bleak conditions also restrict the ferns to a very few species. *Casuarina Cunninghamiana* Miq. (River Oak), though common on the central parts of the Murrumbidgee River, is apparently unable to withstand the rigidity of climatic conditions near Cooma; for, from the information available, it does not appear to ascend above the Michelago district. Though this tree is so common on the freshwater portion of our rivers, it has its limitations on the western watershed both against extreme cold and extreme heat, and flourishes best on the western slopes and lower mountain-areas.

Plants around Cooma.

Most of the plants collected within a few miles of Cooma were growing on gneiss-formation, which may be roughly described as a coarse schist with granitoid structure, suggestive of a crushed or stratified granite, and is a type of rock not very common in this State. The notes for this paper were taken chiefly in February, 1908, and supplemented during a short visit to Kybean early in November. (The name Kybean is pronounced with the accent on the first and last syllables.) The following is a list of plants noticed between Cooma and the Murrumbidgee River about five miles northerly:—

Clematis microphylla DC., *Hibbertia linearis* R.Br., var. *obtusifolia*, *Erysimum blenodioides* F.v.M., *Bursaria spinosa* Cav. (Thorn or Prickly Bush), *Stellaria pungens* Brongn., *Tunica prolifera* Scop. (*Dianthus proliferus* L., introduced), *Plagianthus pulchellus*

A. Gray (on the River), *Erodium cygnorum* Nees, *Stackhousia linearifolia* A. Cunn., *Discaria australis* Hk., *Dodonaea viscosa* L., var. *attenuata* (Hop Bush), *Mirbelia oxylobioides* F.v.M., *Daviesia corymbosa* Sm., *D. ulicina* Sm., *Bossicea prostrata* R.Br., *B. riparia* A. Cunn.(?), *Glycine clandestina* Wendl., *Acacia rubida* A. Cunn., *A. decurrens* Willd. (common Green Wattle), *A. dealbata* Link, (Silver Wattle), *A. Dawsoni* R. T. Baker, *Tillea verticillaris* DC., *Leptospermum flavescens* Sm., *L. lanigerum* Sm.(near the river), *Kunzea peduncularis* F.v.M., *Callistemon salignus* DC., var. *Sieberi* (in the river), *Eucalyptus coriacea* A. Cunn. (Snow-Gum), *E. haemastoma* Sm.(Brittle Gum or Brittle Jack), *E. viminalis* Labill., (White or Manna Gum with narrow "suckers"), *E. rubida* Deane and Maiden(a White Gum with orbicular "suckers"), *E. dives* Schauer (Peppermint), *E. Bridgesiana* R. T. Baker (called Apple in the absence of an *Angophora* : one of the trees recognised by Baron von Mueller as *E. Stuartiana* F.v.M.), *Asperula oligantha* F.v.M., *Galium umbrosum* Sol., *Vittadinia australis* A. Rich., *Brachycome ciliaris* Less., *B. calocarpa* F.v.M., *Craspedia Richea* Cass., *Cassinia longifolia* R.Br., *Helichrysum apiculatum* DC., *H. lucidum* Henk.(Everlasting Flower), *Helipterum incanum* DC., *Wahlenbergia gracilis* DC.(Blue Bell), *Astroloma humifusum* R.Br.(Ground Berries), *Melichrus urceolatus* R.Br., *Brachyloma daphnoides* Benth., *Veronica Derwentia* Andr., *Ajuga australis* R.Br., *Plantago varia* R.Br., *Rumex acetosella* L.(Sorrel : introduced), *Grevillea lanigera* A. Cunn., *Hakea microcarpa* R.Br (a small Needle Bush), *Lomatia longifolia* R.Br., *Pimelea pauciflora* R.Br.(on bank of river), *P. glauca* R.Br., *Urtica incisa* Poir. (Nettle), *Omphacomeria acerba* DC.(Sour Jacks), *Exocarpus stricta* R.Br., *Callitris calcarata* R.Br.(known variously as Black, Green or Mountain Pine), *Xerotes longifolia* R.Br., *Arundo Phragmites* Dod (in the river), *Cheilanthes tenuifolia* Swartz, and *Asplenium flabellifolium* Cav.(two small ferns found among the rocks).

Cooma to Cootralantra.

Owing to the sparseness of the flora between Cooma and Cootralantra, a distance westerly of about 18 miles, only the following

plants were noticed by the roadside:—*Bursaria spinosa*, *Oxalis corniculata* Linn., *Acacia dealbata*, *A. melanoxyton* R.Br., *Eucalyptus viminalis*, *E. coriacea*, *E. rubida* (in one case a host for a species of *Loranthus*), *E. stellulata* Sieb. (Black Sally), *Wahlenbergia gracilis*, *Helichrysum apiculatum*, *Brachycome* sp., *Cassinia longifolia*, *Hypericum gramineum* Forst., *Callitris calcarata*, *Hordeum murinum* Linn. (Barley Grass; introduced), and *Pappophorum commune* F.v.M.

Cooma to Nimitybelle.

Nimitybelle is situated about 23 miles southerly from Cooma. The first 16 miles are confined to undulating basaltic plains, with here and there a few trees of *Eucalyptus coriacea*, or *Acacia melanoxyton*. The celebrated natural soda-water spring, an aërated ferruginous water of commercial value, occurs by the side of this road, near the 10-mile post. After passing the 16-mile post, thinly timbered areas are met with, chiefly of *Eucalyptus coriacea*, *E. rubida* and *Acacia dealbata*. This sparse forest is possibly the advance guard gradually taking possession of the plain, and is supported by more abundant growths on the granites to the south-east, where there is also a greater rainfall.

It is remarkable how *Acacia melanoxyton*, the Tasmanian Blackwood, sometimes called Hickory in this State, and Mudgerabah on the eastern falls of New England, often selects the stony basaltic summits on Monaro. In such situations its habit is dwarfed and somewhat gnarled, owing to its exposure to severe climatic conditions; and its general appearance would scarcely even suggest to the casual observer that it has any close affinity with the same species as seen in Southern Victoria and Tasmania, where the boles often attain a diameter of 2-3 feet. A favourite locality for the species is a gully in basaltic formation.

With the exception of grasses, the only plants noticed between Cooma and Nimitybelle were:—*Erodium cygnorum* Nees, *E. cicutarium* Willd. (introduced), *Discaria australis* Hk., *Acacia melanoxyton* R.Br., *A. dealbata*, *Eucalyptus coriacea*, *E. rubida*, *Cassinia longifolia*, *Wahlenbergia gracilis*, *Pimelea glauca*, and *Hordeum murinum* L. (Barley Grass).

The botanical name of *Eucalyptus rubida*, often a White Gum, was suggested by the presence of patches of plum-coloured bark which are often to be seen just before the outer layers are shed. The colouring is evidently caused by exposure to the sun, and in February the feature was most interesting in the open forest near Nimitybelle, for on approaching the trees from the south they were seen to be white, while the trunks presented a red surface to the north or sunny side. The distinctive colouring was so pronounced that an observant bushman would be able to utilize it as a compass, and on a snowy or dull day the assistance which could be obtained from noting the feature would be invaluable in determining the cardinal points, and thus directing the traveller on a straight course. The red colour indicated the north as accurately as the moss (Lichens) on an old fence or tree-trunk defines the south.

Nimitybelle to Kybean River and Kydra Mountain.

Between Nimitybelle and Mowitt's Swamp near the Kybean River, thence to Kydra Mountain, the following plants were noticed:—

RANUNCULACEÆ: *Ranunculus lappaceus* Sm. (Buttercup), *R. rivularis* Banks & Sol., *R. hirtus* Banks & Sol.

DILLENiaceÆ: *Hibbertia linearis* R.Br., var. *obtusifolia*, *H. pedunculata* R.Br.

MAGNOLIACEÆ: *Drimys aromatica* F v.M.

CRUCIFERÆ: *Cardamine tenuifolia* Hk., *Capsella bursa-pastoris* L. (Shepherd's Purse).

VIOLARIÆ: *Viola betonicifolia* Sm., *V. hederacea* Labill., *Hymenanchera dentata* R.Br., var. *angustifolia* Benth., (*H. angustifolia* R.Br.).

PITTOSPOREÆ: *Bursaria spinosa* Cav., *Marianthus procumbens* Benth., *Billardiera scandens* Sm. (Rolypoly vine).

POLYGALÆ: *Comesperma defoliatum* F.v.M.

CARYOPHYLLÆ: *Stellaria pungens* Brongn.

PORTULACEÆ: *Claytonia australasica* Hk. (white flowers, thickly sprinkled in places along the river-bank).

GERANIACEÆ: *Geranium sessiliflorum* Cav., *Erodium cicutarium* Willd. (Crane's-bill; introduced).

RUTACEÆ: *Boronia algida* F.v.M. (pink flowers), *B. polygali-folia* Sm., var. *pubescens* Benth. (flowers almost white; both growing on the conglomerate), *Phebalium diosmeum* A. Juss. (3 feet high, with yellow flowers, on river-bank), *Phebalium* sp.

STACKHOUSIÆ: *Stackhousia linarifolia* A. Cunn.

RHAMNEÆ: *Pomaderris* sp., *Cryptandra amara* Sm.

LEGUMINOSÆ: *Oxylobium alpestre* F.v.M., *Mirbelia oxylobioides* F.v.M., *Gompholobium minus* Sm., *Daviesia corymbosa* Sm., *D. ulicina* Sm., *Pultenea* sp. (No. 1989), *Dillwynia ericifolia* Sm., (quite prostrate), *D. floribunda* Sm. (near Kydra Trig. Station), *Bossiaea foliosa* A. Cunn. (common on the granite, with yellow flowers and very small leaves), *Swainsona phacoides* Benth., var. *parviflora*, *Hardenbergia monophylla* Benth. (so-called Sarsaparilla; a twining plant with beautiful purple flowers), *Acacia siculiformis* A. Cunn., *A. juniperina* Willd., *A. dealbata* Link. (Silver Wattle), *A. melanoxyton* R.Br., *A. falcata* Willd., *A. penninervis* Sieb. (fairly large trees), *A. obtusata* Sieb. (?), *A. lunata* Sieb., var. (on head of Tuross River, near Kydra Trig. Station; No. 2000).

ROSACEÆ: *Rubus parvifolius* L.

CRASSULACEÆ: *Tillæa verticillaris* DC.

MYRTACEÆ: *Bæckea Gunniana* Schauer, *B. Cunninghamii* Benth. (?), *B.* sp. No. 1990 (possibly a new species), *Leptospermum myrsinoides* Schl., *L. lanigerum* Sm., *L. flavescens* Sm. (all three often known as Tea-tree), *Kunzea* sp., *Callistemon pithyoides* Miq., *Eucalyptus stellulata* Sieb. (Black Sally), *E. coriacea* A. Cunn. (Snow Gum or White Sally), *E. amygdalina* Labill. (Peppermint or Messmate, fairly large trees), *E. viminalis* Labill. (Manna or White Gum), *E. rubida* Deane and Maiden (*E. Gunnii* var. *rubida* Maiden, a White Gum), *E. dives* Schauer (Peppermint), *E. maculosa* R. T. Baker (*E. Gunnii* var. *maculosa* Maiden; Spotted Gum, but not the well known coastal tree), *E. regnans* var. *fastigata* Maiden (*E. fastigata* Deane and Maiden; Cut-tail or Messmate), *E. Sieberiana* F.v.M. (Mountain Ash, the well known coastal tree),

E. fraxinoides Deane and Maiden (*E. virgata* var. *fraxinoides* Maiden, a large gum tree or White Ash; east of Main Divide and south of Kydra Trig. Station), *E. Moorei* Maiden and Cambage (growing like a Mallee at head of Tuross River, near Kydra Trig. Station), *E. parvifolia*, sp. nov., *E. ampgdulina* Labill., var. *nitida* Benth. (?) (No. 2004), *E. sp.* (No. 1980).

UMBELLIFERÆ: *Siebera Billardieri* Benth.

ARALIACEÆ: *Panax sambucifolius* Sieb.

RUBIACEÆ: *Coprosma hirtella* Labill., *Asperula oligantha* F.v.M.

COMPOSITÆ: *Olearia myrsinoides* Labill., *O. stellulata* Labill. (?), *Brachycome* sp., *Craspedia Richea* Cass. (Yellow Buttons), *Helichrysum scorpioides* Labill., *H. semipapposum* DC., *H. apiculatum* DC., *Helipterum anthemoides* DC., *H. incanum* DC.

STYLIDEE: *Stylidium graminifolium* Sw. (Trigger-Flower).

GOODENIACEÆ: *Goodenia hederacea* Sm., *Dampiera stricta* R.Br.

CAMPANULACEÆ: *Wahlenbergia gracilis* DC. (Blue Bell).

ERICACEÆ: *Gaultheria hispida* R.Br. (Snow-Berries).

EPACRIDEÆ: *Styphelia* sp. (no flowers), *Brachyloma daphnoides* Benth., *Leucopogon lanceolatus* R.Br., *L. Hookeri* Sond., *Acrotichis divaricata* R.Br., *Epacris petrophila* Hk., *E. robusta* Benth., *E. paludosa* R.Br., *E. microphylla* R.Br.

GENTIANEÆ: *Gentiana montana* Forst., (Gentian, locally called Bridal Flowers).

CONVOLVULACEÆ: *Convolvulus marginatus* Poir.

SCROPHULARINEÆ: *Veronica Derwentia* Andr., *V. sp.* (about 2 inches high, with blue flower), *Euphrasia Brownii* F.v.M.

LENTIBULARINEÆ: *Utricularia dichotoma* Labill., var. *uniflora*.

LABIATE: *Prunella vulgaris* DC., *Ajuga australis* R.Br.

PLANTAGINEÆ: *Plantago varia* R.Br.

PARONYCHIACEÆ: *Scleranthus biflorus* Hk. (forming pale green dense tufts or mats, usually 6-9 inches across, and 1-2 inches high).

LAURINEÆ: *Cassytha phœolasia* F.v.M. (Dodder).

PROTEACEÆ: *Isopogon ceratophyllus* R.Br. (quite prostrate, on conglomerate-formation near Kydra Trig. Station), *Persoonia*

lanceolata Andr.(?)(Geebung), *P. oxycoccoides* Sieb., *Grevillea lanigera* A. Cunn (red flowers), *Hakea microcarpa* R.Br.(Needle-bush) *H. dactyloides* Cav., *Lomatia longifolia* R.Br., *Banksia marginata* Cav.(Honeysuckle), *B. integrifolia* L.

CASUARINÆ: *Casuarina stricta* Ait.,(*C. quadrivalvis* Labill.; Sheoak), *C. nana* Sieb.

SANTALACEÆ: *Choretrum spicatum* F.v.M., *C. Candollei* F.v.M., *Exocarpus cupressiformis* Labill.(Native Cherry), *E. stricta* R.Br. (very common on Kydra Mountain).

ORCHIDÆ: *Caladenia testacea* R.Br.

IRIDÆ: *Patersonia sericea* R.Br.(Wild Iris).

AMARYLLIDÆ: *Hypoxis hygrometrica* Labill.

LILIACÆ: *Dianella revoluta* R.Br., *Xerotes glauca* R.Br.

JUNCACÆ: *Luzula campestris* DC.(Pepper and Salt).

GRAMINEÆ: *Themeda Forskalii* Hook.(*Anthistiria ciliata* L.; Kangaroo Grass).

FILICES: *Gleichenia dicarpa* R.Br.(Braid or Bead Fern) *Adiantum aethiopicum* L.(Maidenhair Fern), *Pteris aquilina* L., (Bracken), *Blechnum discolor* (Forst.) Kunze,(*Lomaria discolor* Willd.), *Asplenium flabellifolium* Cav.

MUSCI: *Leptostomum erectum* R.Br.,(Moss, on shady side of granite rock).

About one mile easterly from Nimitybelle, along the Bega Road, the country changes from basalt to granite; and this is followed by an increased number of both plants and species. The formation on Kydra Mountain is sedimentary, probably Silurian. The elevation over a great portion of this area approximates 3000-4000 feet; which, in this southern latitude, furnishes climatic conditions suitable for the growth of many Tasmanian plants.

Nimitybelle is situated just on the coastal or Snowy River watershed, the Main Divide passing along the northern edge of the village. The route followed to Kybean crosses the Great Dividing Range in about a mile, and continues on the north-western or Murrumbidgee watershed. The Main Divide has an easterly course from Nimitybelle, but curves round to the north after passing the head of the Umaralla River. This northerly

extension was intersected near the head of Mowitt's Swamp Creek opposite the Brogo and Tuross Rivers, where the formation is sedimentary, that forming the actual summit of the Main Range being a sandy conglomerate, suggestive of the Devonian period, though no fossils were found. The flora of these highly siliceous conglomerate hills differs considerably from that of the granite, the former producing many Sydney and Blue Mountain plants, though often in a dwarfed form owing to the rigid climatic conditions and poorness of soil. The range in this locality has a wonderful effect upon the vegetation. It rises from the west with a fairly pronounced slope, while its eastern face is steep, and scored into deep gullies, as a result of the denudation which is necessarily consequent upon the rapid course of the coastal streams, which, starting at an elevation of about 4000 feet, are less than 35 miles from the ocean in a direct line. Having one steep face exposed to the ocean, with the attendant conditions of warmth, shelter, and moisture, as well as being shut off from the drying westerly influence, while the other face has the conditions reversed, this high range exerts a most interesting and decided effect upon the plant-life in this locality. Generally throughout its course the Main Range in New South Wales occupies a position approximating the centre of the mountain-area, but in the vicinity under discussion it forms the eastern margin of the plateau. On ascending from the western side, amongst trees which favour a western aspect, it is noticed as the summit is approached that many of the Eucalypts become dwarfed, though partly owing to the change of geological formation, and after being reduced to some 5-10 feet high, cease altogether, the actual crest, for a width of a few hundred yards, being nothing more than a heath, with *Casuarina nana* as one of the principal constituents. The evidence of failure, on the part of many western-loving plants, to overcome the warmer coastal influence is most pronounced. Perhaps one of the best examples of failure is to be found in the Snow Gum, *Eucalyptus coriacea*. Although this tree braves the cold and snowy elements better, and ascends higher on our exposed mountains than any

other Eucalypt, it may be said to fairly succumb at Kybean, the moment the full strength of the coastal conditions is encountered.

When nearing the summit from the west, it was a curious sight to see the tops of large gum trees of a different species gradually coming into view from the coastal side. These were found to be *Eucalyptus fraxinoides* Deane and Maiden, nestling around the heads of the gullies having an eastern aspect, and not one tree of this species was noticed on the exposed western face. Tree-ferns and brush-growths are said to flourish in the eastern gorges before they have descended a mile. The time at my disposal for investigation was very limited, but it seems clear that the locality presents excellent material for studying the effects of aspect, temperature, shelter, and moisture upon the growth of plants.*

Hymenanthera dentata var. *angustifolia*, laden with green berries which are bluish when ripe, was found growing in a curious, spreading, prickly-looking mass, often covering rocks, and in habit totally unlike *H. dentata* when seen near the Nepean, Cox's River, or Kangaroo Valley as an erect shrub of several feet.

A remarkable prostrate form of *Dillwynia ericifolia* was noticed on the granite-formation close to the bank of the Kybean River, at about 3500 feet above sea-level, much of the plant being covered with yellow flowers, while the stems are partially imbedded in the soil. An exactly similar form has been noticed in two localities near Braidwood, also on granite, at an elevation of slightly over 2000 feet, so that the prostration cannot be attributed solely to severe climatic conditions. At Sydney and on the Blue Mountains, *D. ericifolia* is a very common, yellow-flowered, little shrub of a few feet, erect in habit, though often diffuse.

The plant referred to as *Acacia lunata* var. (No. 2000) was found near the head of the Tuross River on the conglomerate

* For reference by the Rev. W. B. Clarke, M.A., to the remarkable change of climate in this locality, see Clarke's "Southern Gold-Fields," pp. 149-150.

area, and is a dense spreading shrub of about 6-8 feet, flowering in October. It appears to be distinct from that collected near Cowra Creek (No. 1878), which is regarded as a possible variety of *A. linifolia*, and both have some characters different from the typical Sydney plant (*A. linifolia*), which, however, is known to exhibit considerable variation.

An interesting *Bæckea* (No. 1990) was found plentifully distributed over the sandy conglomerate-hills, at elevations up to 4000 feet. The plant is quite prostrate, spreading from 1-2 feet across, and early in November is charmingly crested with a profuse display of white flowers, in some cases very faintly tinged with pink. The ovate leaves are about 3-4 lines long, and slightly ciliate on the edges. This is possibly a new species.*

Leptospermum myrsinoides (a Tea-tree shrub) was fairly common in the valleys between Nimitybelle and Kybean; and, although the flowers were white, it has been noticed that in a few weeks they turned quite yellow in the specimens collected.

Gaultheria hispida, a shrub of about 3-4 feet, was found on the banks of Mowitt's Swamp Creek, near its source. This is a common Tasmanian plant, and usually attracts the attention of visitors to Mount Wellington, owing to its pendulous clusters of pure white berry-like fruits, which are exceedingly ornamental and known in some parts of Tasmania as snow-berries. This species occurs on the higher parts of this State at such places as Jenolan Caves, Mount Wilson, and New England.

Epacris robusta, a somewhat rare plant, is plentiful on the sandy conglomerate of the Main Range, at 4000 feet, near Kydra Trig. Station. It resembles *E. obtusifolia* Sm., but is even more beautiful when laden with masses of white flowers early in November.

Grevillea lanigera occurs intermittently throughout the area described, and was the only *Grevillea* noticed. The genus is but sparsely represented in the coldest parts of the State, and in Tasmania.

* To be described by Messrs. Maiden and Betche as *B. denticulata*, in These Proceedings (*postea*).

Banksia marginata (Honeysuckle) is fairly common on the granite-formation between Nimitybelle and Kybean. *B. integrifolia* was not seen on the granite, but is common on the conglomerate from 3600 to 4000 feet, though, owing to severity of climate, it is remarkably dwarfed; and instead of trees 40 feet high, as seen along the coast, the average height of plants bearing mature cones is from 2-5 feet.

Casuarina stricta (*C. quadrivalvis* Labill.) may be seen beside the road-cutting which passes down the Kydra Mountain to the Umaralla River. This somewhat drooping, large-coned Sheoak, which occurs on many of the hill-tops in the western districts, at least as far out as Cobar, is not a lover of the cold portions of the State, although growing in parts of Tasmania. It has probably reached the locality under discussion by working its way up along some of the sheltered ridges within the valley of the Murrumbidgee, its occurrence some 20 miles south-west of Yass having been recently noticed. It never grows on a river-flat. On Kydra Mountain it is found at an elevation of about 3000 feet above sea-level, an unusual altitude, but it is interesting to observe the great discrimination it exercises in its selection of a suitable aspect. On Monaro the extreme cold is on the southern aspect, and although *Casuarina stricta* was found growing freely on the northern side of a steep hill, not a single tree of this species was seen where the road winds round the southern face; but on the opposite side of the gorge, where another hill faces north, the oak trees were again plentiful. Generally this species avoids the shelter of larger trees, and selects fairly open hills, but here it was distributed through the forest of Eucalypts after the manner of *Casuarina suberosa* and *C. torulosa*, and was growing on highly inclined Silurian slate-formation.

In these Proceedings for 1905(p.376) I referred to the probable antiquity of *C. stricta*, when accounting for its wide and varied distribution; and the example now mentioned, showing its remarkable potentialities for acclimatising itself in a cold region, though usually favouring a warm one, is at least suggestive of a long period being required for it to establish itself at this altitude,

and serves to illustrate the wonderful, though perhaps gradual, adaptability of plants to environment.

C. nana was common on part of Kydra Mountain, and on the Main Divide, occupying the latter almost exclusively for some considerable distance.

Eucalyptus maculosa (sometimes called Spotted Gum) was noticed between the Umaralla River and Dangelong. This species does not appear able to withstand the extreme cold of high altitudes so well as *E. coriacea* or *E. rubida*, and occupies chiefly the central and western side of the mountain-area from the Upper Hunter southerly, extending into Victoria at least as far as Ballarat. It is often associated with *E. dives* (Peppermint).

Eucalyptus Moorei was found growing in Mallee-like form in the open gullies just on the eastern side of the Main Range, on the actual head-waters of the Tuross River, and seemed confined to the siliceous conglomerate-formation. Except that the foliage, chiefly the juvenile growth, is somewhat broader than that of the type, it otherwise corresponds exactly with the Blue Mountain shrub; and in both cases is growing near the summit of the mountain-zone on highly siliceous geological formations, very slightly favouring an eastern or coastal aspect, but with more rigid climatic conditions at Kybean than at Blackheath. In no case does it appear to attain the dignity of a tree, reaching, at Kybean, a height of 10-12 feet, with a diameter of 2-5 inches. Typical *E. stellulata*, which it resembles in herbarium material when juvenile foliage is absent, was growing some 3 or 4 miles off, up to 50 feet high, with a diameter of 2½ feet, and having very broadly ovate, or in some cases almost orbicular "suckers."

Another Mallee-like Eucalypt,* 6-10 feet high, was noticed in patches on the bald conglomerate-hills, and appears to be similar to a form found in very limited quantity at Blackheath by Mr. Maiden and myself, and referred to as Form C, in these Proceedings for 1905 (p.201). This plant, which was in full flower at the end of October, will be further investigated by us.

* (No. 1980).

E. amygdalina var. *nitida* (?) (No. 2004) was found growing in Mallee-like form, 6-8 feet high, about 50 yards southerly from Kydra Trig. Station, and associated with No. 1980, on the sandy conglomerate-formation, at 4030 feet above sea-level. It has very smooth shining leaves and was beginning to flower early in November, and seemed quite distinct from typical *E. amygdalina*, which was growing as large forest-trees, a few hundred yards away.

E. Sieberiana (Mountain Ash) so well known on the sandstone areas of the eastern slope, was not plentiful at Kybean, and generally prefers the eastern rather than the western side of our mountains. It was seen on a granite-hill across the river, opposite Mr. Tivey's residence.

An interesting species of *Eucalyptus*, with remarkably small leaves, was found on the flats bordering the head-waters of the Kybean River, and, from its association with *E. stellulata* (Black Sally) and a passing resemblance to that species, was locally known as Small-leaved Sally. This proves to be a new species (see p. 336).

Cooma to Cowra Creek and Macanally.

From Cooma to Cowra Creek is a distance north-easterly of about 20 miles, the first half of the road passing over open plains, while the second half is confined to rough hills of tilted Silurian slates, fairly well covered with *Eucalypts* of medium height, and an undergrowth of shrubs and dried-looking tussocky grass (*Danthonia penicillata*), the latter, when associated with *Eucalyptus hæmastoma* (Brittle Gum) among the brown protruding edges of the rocks, imparting a somewhat dreary aspect to the forest scene. Macanally is a locality in the same slate-area, about 5 miles southerly from Cowra Creek, at both of which places gold mining is carried on. In returning to Cooma the road passing Rosebrook from Macanally was followed. With the exception of *Discaria australis*, the whole of the plants mentioned in the following list were noticed on the slate-area referred to.

Around Cowra Creek and Macanally.

DILLENIACEÆ: *Hibbertia linearis* R.Br., var. *obtusifolia*.

PITTOSPOREÆ: *Bursaria spinosa* Cav.

GERANIACEÆ: *Oxalis corniculata* L.

RHAMNEÆ: *Discaria australis* Hk.

SAPINDACEÆ: *Dodonaea viscosa* L.(Hopbush).

LEGUMINOSÆ: *Oxylobium ellipticum* R.Br., var. *alpinum*(Wild. Wallflower), *Daviesia corymbosa* Sm., (narrow-leaved form), *D. ulicina* Sm., *Pultenea procumbens* A. Cunn., *P. microphylla* Sieb., *Indigofera australis* Willd.(Lilac), *Hardenbergia mono-phylla* Benth.(False Sarsaparilla), *Acacia siculiformis* A. Cunn., *A. diffusa* Lindl.(Prickly Wattle), *A. undulifolia* Fraser (very common between Macanally and Rosebrook, near foot of mountain), *A. verniciflua* A. Cunn., *A. penninervis* Sieb., (Hickory, 40 feet high), *A. rubida* A. Cunn., *A. lunata* Sieb., *A. dealbata* Link(Silver Wattle), *A. linifolia* Willd., var.(No.1878), *A. Dawsoni* R. T. Baker.

MYRTACEÆ: *Leptospermum flavescens* Sm., *L. myrsinoides* Schl., *Callistemon pithyoides* Miq., *Eucalyptus stellulata* Sieb., *E. coriacea* A. Cunn., *E. macrorrhyncha* F.v.M.(Stringybark), *E. hæmastoma* Sm.(Brittle Gum or Brittle Jack), *E. pulviger* A. Cunn., *E. viminalis* Labill.(Manna or White Gum), *E. Bridgiana* R. T. Baker(Apple), *E. rubida* Deane & Maiden(White Gum), *E. maculosa* R. T. Baker, *E. dives* Schauer(Peppermint).

LORANTHACEÆ: *Loranthus* sp.

COMPOSITEÆ: *Brachycome* sp., *Cassinia longifolia* R.Br., *C. aculeata* R.Br., var. *uncata*, *Helichrysum apiculatum* DC.

CAMPANULACEÆ: *Wahlenbergia gracilis* DC.(Blue Bell).

EPACRIDÆ: *Melichrus urceolatus* R.Br., *Leucopogon attenuatus* A. Cunn., *L. Hookeri* Sond.

SCROPHULARINEÆ: *Veronica Derwentia* Andr.

PROTEACEÆ: *Persoonia rigida* R.Br., *P. chamaepeuce* Lhotsky, *Grevillea lanigera* A. Cunn., *Hakea microcarpa* R.Br.

SANTALACEÆ: *Choretrum spicatum* F.v.M., *Omphacomeria acerba* DC.(Sour Jacks), *Exocarpus cupressiformis* Labill.(Native Cherry), *E. stricta* R.Br.

CONIFERÆ: *Callitris calcarata* R.Br. (Black or Mountain Pine).

LILIACEÆ: *Dianella revoluta* R.Br. (?) (Wild Flax).

GRAMINEÆ: *Danthonia penicillata* F.v.M., var. *pallida*.

FILICES: *Pteris aquilina* L. (Bracken).

A very narrow-leaved form of *Daviesia corymbosa* was noticed, and found to be constant throughout the district as well as on Kydra Mountain; and, when compared with the typical broad-leaved form as seen near Nimitybelle and elsewhere, was certainly suggestive of being a separate and smaller species. This form occurs in other parts of this State.

Pultenea microphylla was found as an absolutely prostrate plant, quite dissimilar in habit from the erect little shrubs collected at Gilgandra and Scone, and which have been referred to by Messrs. Maiden and Betche in these Proceedings for 1908 (p.310) as connecting links between *P. cinerascens* Maiden and Betche, and *P. microphylla*.

Acacia rubida was distributed throughout the area, and here, as elsewhere, was noticed to retain its juvenile leaflets mingled with the phyllodia, until the plant was nearly full-grown. It is not uncommon to find this feature in very young plants of many Acacias, but few retain the two forms of foliage so long as *A. rubida*. A young plant of *A. melanoxylon*, when growing luxuriantly in sheltered situations, will sometimes speedily reach several feet before showing any phyllodia, after which it presents a remarkable appearance with its dimorphic foliage, until finally reaching the stage when none of the leaflets remain.

Considerable interest attaches to the discovery of *Acacia Dawsoni* in the Cooma district, viz., at about 5 miles northerly from Cooma and a few hundred yards south of the bridge over the Murrumbidgee River, on gneiss-formation; also on the roads from Cooma to Cowra Creek and to Macanally on Silurian slate. In each case the shrubs are about 4 feet high, and somewhat spreading. Prior to 1907, this species was recorded only from Rylstone (type-locality) and Abercrombie, but in that year it was found by me at Emmaville, and in 1908 at Cooma, thus extending its range almost through the entire length of the State,

but in all cases so situated as to be subject to the westerly influence.

The genus *Loranthus* (Mistletoes) does not appear to be strongly represented over the area described, but when going from Cowra Creek to Macanally, several *Loranthus* were found at one spot only, where a belt of diorite about 20 yards wide crossed the track, the hosts being *Eucalyptus macrorrhyncha* and *E. maculosa*. Though they were certainly more plentiful on the diorite, the occurrence was not strictly confined to that formation, and though somewhat remarkable may be only a coincidence.

One of the most interesting species met with on Eastern Monaro was *Eucalyptus pulviger* A. Cunn, owing chiefly to its rarity, and partly because of its probable identity with *E. pulverulenta* Sims. This plant was referred to by me in these Proceedings for 1902 (p.585), when its strong affinities with *E. cordata* Labill., of Tasmania, and its resemblance to *E. pulverulenta* were discussed.

E. pulviger was described by Allan Cunningham from specimens collected at Cox's River, near Bowenfels, on 8th October, 1822. It is a shrubby species, seldom reaching 20 feet high, and often less than 12, with a smooth, greenish-white, gum-tree bark, which is eventually cast off in long brown ribbons. Its tough stems are commonly from 2-3 inches in diameter, but are usually bent over, and, in some instances, are quite prostrate. Its most remarkable characteristic, however, is in the colour, shape, and disposition of the leaves. These are either orbicular or broadly ovate, and grow along the branches in decussate pairs, about an inch apart, being covered on both sides with a fine glaucous powder which gives to the little trees a bluish-white tint. There is an absence of the lanceolate leaves so common amongst the mature foliage of the genus, and altogether the general appearance of these dwarf Eucalypts with their rambling habit is decidedly quaint and striking. The branches are placed approximately at right angles to the stem, and the leaves at right angles to the branches, so that, when viewed from certain positions, only the

edges of the leaves can be seen, resembling circular blades. The foliage, which is exceedingly rich in eucalyptol, loses the white powder with maturity, and when, by contact with adjoining trees, it is rubbed off the young leaves, these present a bright rich green appearance, especially if in shadow. Another curious feature is that the leaves through being sessile, cordate and opposite, imprint circular marks on the branches and stems, which remain for several years after the leaves have fallen, but disappear when the bark is shed at the end of about four years. That the species is rare, is shown by the fact that, after Cunningham found it in 1822, it was not again collected till a very small patch of it was noticed by me in 1900, at Cow Flat, near Bathurst, on micaceous schist-formation. A third locality, on Silurian slate-formation, viz., Cowra Creek, near Cooma, is now added, after a further lapse of eight years, or 86 years since Cunningham's discovery.

In October, 1904, I visited Cox's River, in company with Mr. J. H. Maiden, for the purpose of ascertaining whether any plants of *E. pulviger*a remained, and we found a considerable quantity extending from the top of Mount Blaxland (where Cunningham probably collected it, 82 years before) across to the northern side of Cox's River, and on the roadside leading from Bowenfels to the river, growing on aplitic granite-formation.

After referring to the differences and close affinities between *E. pulviger*a and *E. cordata*, in these Proceedings for 1902, I was disposed to regard one as a variety of the other, thinking that possibly a connecting link would be found in some locality between Bathurst and Tasmania, where a plant showing gradations to both might be discovered. The surmise is partly borne out by the discovery of *E. pulviger*a near Cooma, some 200 miles south of Bathurst, but after examination, the specimens are found to be practically identical with the Bathurst and Cox's River forms, so that there seems no reason why *E. pulviger*a should not have specific rank. At the same time it is highly probable that both had a common origin, and have developed differences owing to environment, extending over long ages. Both are rare,

diminutive in size, and, it seems likely, are slowly vanishing species. Around Cowra Creek the plants occur in small clumps of an acre or so, and are considered rare even in that locality. The same applies both to Cox's River and Bathurst.

*E. pulviger*a is discussed by Mr. J. H. Maiden, F.L.S., in these Proceedings for 1904 (p.769).

In the Report of the Australasian Association for the Advancement of Science for 1901 (Vol. ix., p.345), Mr. R. T. Baker, F.L.S., refers to *E. cordata* and *E. pulviger*a as distinct species, but regards the latter as identical with *E. pulverulenta* Sims (Bot. Mag. t. 2087) which was described in 1819, or three years before Cunningham's discovery of the plant. Up to 1901, Australian botanists had recognised a tree known as the Argyle Apple, which grows in the Goulburn district (County of Argyle), as *E. pulverulenta*, and which is undoubtedly distinct from *E. pulviger*a. Baron von Mueller described what he afterwards rightly regarded as only a form of the Argyle Apple, naming it *E. cinerea*. This name Mr. Baker resuscitated for the species, when deciding to adopt the name of *E. pulverulenta* for the Cox's River plant. My greatest difficulty in accepting the Cox's River tree as *E. pulverulenta* was that only six years had elapsed from the time the explorers first reached that locality in 1813, till the species was flowering, and the description published from a cultivated plant in England in 1819. Knowing also that no similar geological formation to that at Cox's River occurred near the road between that point and Sydney, it seemed doubtful if the plant ever grew at a place that was earlier accessible. The possibility of the described species having been raised from seeds collected at Cox's River has, however, since been demonstrated; for seeds brought thence in October, 1904, have produced plants which flowered in three years and five months (Plate xxx.). It must be remembered, however, that in the early days, after seeds were collected here, quite six months would probably elapse, before they could be planted in England. The terminal point reached by Blaxland and party in 1813, was a few hundred yards south of Mount Blaxland. Between 1813 and 1815, a road was constructed to

Bathurst, and collections of seeds may have been made during that period; but in Major Antill's diary, describing Governor Macquarie's visit to Bathurst, under date 30th April, 1815, it is stated that a party walked up Cox's River from the crossing to the waterfall, and collected seeds on the way up.

Seedlings of *E. pulviger* and the Argyle Apple which were growing in pots side by side, were very similar in appearance for the first year, the difference being in the colour of the stems, those of the former being greenish, while those of the latter were brown, both being indicative of the future colour of the bark. In mature growth the trees are quite dissimilar. The original description and plate of *E. pulverulenta* correspond better with *E. pulviger* than with the Argyle Apple (*E. cinerea* F.v.M.), and it seems likely that the little Cox's River tree would have been identified as *E. pulverulenta*, whether rightly or wrongly, if it had not been so rare as to escape the notice of botanists for about 80 years. The evidence now available favours the suggestion that *E. pulviger* A. Cunn., is synonymous with *E. pulverulenta* Sims.

List of Acacias.

A complete list of Acacias noticed on Eastern Monaro is as follows:—*A. sicutiformis*, *A. diffusa*, *A. undulifolia*, *A. verniciflua*, *A. falcata*, *A. penninervis*, *A. obtusata*(?), *A. rubida*, *A. linifolia* var.(?), *A. lunata*, *A. lunata* var., *A. melanoxyton*, *A. decurrens*, *A. dealbata*, *A. Dawsoni*.

A. doratoxyton A. Cunn., the Currawong of western New South Wales, has been identified from specimens obtained about 16 miles southerly from Dalgety in the vicinity of Popong. The occurrence of this species in such a cold locality is most remarkable. It was pointed out to me, in 1898, as Myall.

List of Eucalypts.

The Eucalypts noticed were as follows:—*E. stellulata*, *E. Moorei*, *E. coriacea*, *E. amygdalina*, and var. *nitida* (?), *E. dives*, *E. macrorrhyncha*, *E. hamastoma*, *E. fraxinoides*, *E. pulviger*,

E. viminalis, *E. Bridgesiana*, *E. rubida*, *E. maculosa*, *E. fastigata*, *E. Sieberiana*, *E. parvifolia*, n.sp. *E. sp.*, (No. 1980).

My thanks are due to Messrs J. H. Maiden, F.L.S., and E. Betche for assistance in identifying some of the plants. I am also indebted to Miss E. Tivey, who supplemented my collection of specimens, and to Mr. Alfred Tivey for affording facilities for visiting the Kybean River, and also for procuring leaves of *Eucalyptus parvifolia* for distillation.

EXPLANATION OF PLATE XXX.

Seedlings of *Eucalyptus pulviger* A. Cunn., grown from seed collected at Cox's River, in October, 1904; flowering, March, 1908.